**Genetic Problem Review Packet**

**Page 1 – Dominant/Recessive & Incomplete Dominance**

**1a. Dd x dd**

**1b. 50% chance no dimples**

**2a. Ee x Ee**

**2b. ee**

**2c. 25% chance attached earlobes**

**3a. RR x rr**

**3b. 0% chance left-handed child**

**3c. Dad always gives dominant right hand gene**

**3d. 100% chance right-handed child**

**4a. R\_ x rr**

**4b. RR x rr**

**5a. Pink = RW**

**5b. RR x WW = all pink offspring**

**5c. 50% chance pink**

**5d. 25% chance red**

**5e. 25% chance white**

**6. YY = Yellow WW = White WY = cream**

**No, can only get white or cream offspring if you cross a**

**white and cream guinea pig**

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**Page 2 – working backword; dihybrid crosses; sex-linked traits**

1. **Rr x rr**
2. **Bb x Bb**
3. **B – Black S – solid**

**b – reddish-tan s – spotted**

**Female: Bbss**

**Male: bbSs**

**4. W – colorless D – Disc shape**

**w – colored d – sphere shape**

**Colorless; Disc (9)**

**Colorless; sphere (3)**

**Colored; Disc (3)**

**Colored; sphere (1)**

**5. XX – Female C – normal vision**

**XY – Male c – colorblind**

**XcY x XCXc = 50% chance colorblind**

**6. XX – Female H – normal**

**XY – Male h – hemophilia**

**XhY x XHXH = 0% chance hemophilia**

**7. XX – Female R – Red eyes**

**XY – Male r – white eyes**

**XrXr x XRY = Red eye females and white eye males**

**8. XBXY x XBY = black female; tortoise shell female; black**

**male; yellow male**

**9. Males only get one gene for color Black OR Yellow, not both**

**– so only females show the tortoise shell coat color pattern**

**Page 3 – Oompah Loompa Genetics (extra credit)**

**1. BB or Bb = Blue and bb = orange**

**2. 25% chance orange [Bb x Bb]**

**3. 100% chance blue [BB x bb]**

**4. bb x Bb**

**5. children genotypes = Bb; No, not pure = hybrid**

**6. 50% chance orange faces**

**7. RR = Red BR = Purple BB = Blue; Incomplete dominance**

**8. 50% chance blue hair [BR x BB]**

**9. Yes, Opal (BB) will only have blue or purple haired children**

**10. Purple [RR x BB]**

**11. 25% chance blue; 50% chance purple; 25% chance red**

**12. Blue; Purple**

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**Page 4 – General Review (Extra Credit)**

**1a. 50% Hh – hot & 50% hh – mild**

**1b. 25% HH, 50% Hh, 25% hh = 75% hot & 25% mild**

**1c. 50% HH, 50% Hh = 100% hot**

**2. 50% or 2/4 chance razor sharp [Rr x rr]**

**3. Yes, if the dad was Bo he could be the father; the AB mom**

**cannot have a Type O baby though**

**4. No – heterozygous means one dominant and once recessive**

**gene = dominant phenotype**

**5. ssxx x SsXx = 50% chance both strength & x-ray vision**

**6. S – Short hair D – dark hair**

**s – long hair d – light hair**

**Ssdd x SSDd**

**7. 50% chance**

**8. Skip or:**

**½ x ½ = ¼ and ¼ x 40 = 10 times**

**9. No – they can’t give a gene they don’t have!**

**10. 50% chance polydactyly [pp x Pp]**

**11. 1 Black (heterozygous) parent & 1 white parent**

**12. 100% normal [AA x Aa]**

**13. 50% normal and 50% albino [Aa x aa]**

**14. 3:1 (75% dominant/25% recessive0**

**15. 25% chance children will be normal for both conditions**

**[Aamm x aaMm]**